



Diagnostic Test #3

Georgia High School Graduation Tests

Name: _____

1. Which choice below shows 0.71 written as a percent?

- A. 0.71%
B. 7.1%

$0.71 = 71\%$

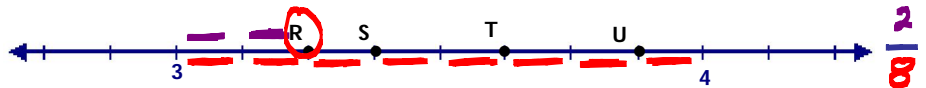
- C. 71%
D. 710%

2. What is another way to express 125?

- A. $5^2 = 5 \cdot 5 = 25$
B. $5^3 = 5 \cdot 5 \cdot 5 = 125$

- C. $25^2 = 25 \cdot 25 = 625$
D. $12.5 \times 10^2 = 1250$

3. Which point is plotted at $3\frac{1}{4}$?



- A. Point R
B. Point S

- C. Point T
D. Point U

4. Rewrite the number 237,000,000,000 using scientific notation?

- A. 237×10^9
B. 2.37×10^{11}



- C. $.237^{12}$
D. 23.7×10^{10}

5. Which of the following pairs of activities could be used to illustrate the commutative property?

- A. putting on a jacket and then putting on a hat ← WORKS EITHER WAY
B. turning on the computer and checking e-mail
C. putting on your socks and putting on your shoes
D. cooking a hamburger and eating the hamburger

6. Francine was in charge of tracking how many students came to ^{THE} homecoming game. When she started she wasn't sure how many students were already there. Until she could get help, she just let 'n' represent the number of students that were already at the homecoming game when she got there. She counted 46 additional students had come to the game from 6:30 to 7:00pm which meant there were $n + 46$ students. Then, she counted an additional 82 students showing up to the game from 7:00 to 8:00pm. This meant that there were now $(n + 46) + 82$ students.

Use the associative property to write an equivalent expression.

- A. $n = 46 + 82$
B. $n + (46 + 82)$

- C. $46n + 82$
D. $n(46 + 82)$

7. What is the identity element for multiplication?

A. 0

C. $\frac{1}{2}$

B. 1

D. $\frac{0}{x}$

8. An administrator at a local high school is trying to determine the mean score and other statistical measures of 426 student test scores to report to the district on how well the high school is doing. Which of the following methods would be the most appropriate to use to get accurate results?

A. a calculator

C. mental arithmetic

B. a computer

D. paper and pencil

9. Jason is trying to buy a car and is filling out a loan application. The loan application asks him to estimate how much money he earns annually. If Jason earns about \$105 per day and works on average 5 days a week for 50 weeks of the year, then estimate how much money does Jason earn each year?

A. \$25,000.00

$$\approx \$100 \cdot 5 \cdot 50$$

C. \$250,000.00

B. \$5,775.00

$$\approx \$25000$$

D. \$57,750.00

10. A shirt which originally cost \$58.00 are selling at a 35% discount, what is the amount of the discount?

A. \$3.50

$$= 0.35 \times \$58.00$$

$$= \$20.30$$

C. \$35.00

B. \$16.57

D. \$20.30

0.35*58	20.3
■	

11. If Adisa borrows \$8,000 to pay for college tuition at a fixed interest rate of 8% per year, how much interest must she pay if she pays the loan in full at the end of 2 years ($I = P \cdot R \cdot T$)?

A. \$16

$$I = (\$8000)(.08)(2)$$

$$= \$1280$$

C. \$1280

B. \$640

D. \$8000

(8000)(.08)(2)	1280
----------------	------

12. Marco works at the school store and does not have a register to compute the sales tax. If the sales tax is 5%, what amount should Marco add to a purchase of \$5.80?

A. \$0.05

$$= .05 \times \$5.80$$

$$= .29$$

C. \$0.58

B. \$0.29

D. \$1.05

.05*5.80	.29
----------	-----

13. Evaluate $15 - 3(3^2 - 5)$

A. 3

$$= 15 - 3(9 - 5)$$

$$= 15 - 3(4)$$

$$= 15 - 12$$

$$= 3$$

C. 27

B. -17

D. 48

14. Ashley's grades for the semester were 92, 90, 77, 80, 79, 91. What is a reasonable estimate of her grade point average for the semester?

A. 95
B. 90

$$\approx \frac{90 + 90 + 80 + 80 + 80 + 90}{6} \approx 85$$

C. 85
D. 80

15. Choose the situation from the list below where a result using **approximate** numbers would **most likely** be acceptable.

- A. Jessie is in charge of keeping the point totals for the score board at the basketball game.
 B. Danny is taking Chantel out on a date to the movies and quickly checks his wallet to see if he has enough money. (PLANNING FOR FUTURE)
 C. Yvonne is filing her income taxes with the State.
 D. Kim is a nurse at the local hospital and is recording the vital signs of a new born baby.

16. Choose the situation where **exact** numbers would **most likely** be involved.

- A. Mr. Johnson pays his cellular phone bill.
 B. Bill is riding with his family to the beach for vacation and asks his dad how many minutes will it be before they get to the beach.
 C. Paul wants to purchase some school supplies and asks his parents for some money to purchase them.
 D. Janet is determining what time she needs to leave in order to make it to school on time.

17. There are 6 cookies left in a cookie jar. Some of the cookies are chocolate and the rest are peanut butter flavor. The probability of randomly reaching into the cookie jar and selecting a chocolate cookie is $\frac{2}{3}$. How many of the cookies in the jar are peanut butter flavor?

A. 1
B. 2

$$\frac{2}{3} = \frac{4}{6} \text{ CHOCOLATE TOTAL}$$

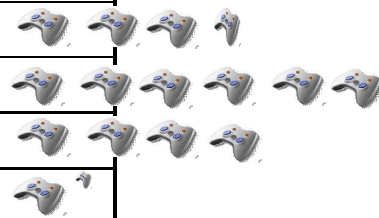
WHICH LEAVES ONLY 2 TO BE PEANUT BUTTER!

C. 3
D. 5



18. Josh is making a pictograph for a magazine to show prices of different gaming systems. He summarized his data:

Grade	Number of students in favor of open lunch
Xbox 360	\$180
PS3	\$350
Wii	\$200
Game Cube	\$60



In the pictograph, how many students could be **best** represented by this symbol?

A. 1
B. 50

C. 100
D. 150



19. A student took a poll at the movie theater and asked patrons what was their favorite food to eat at the movies. The results of the poll are shown.

Popcorn	63%
Candy	24%
Nachos	5%
Hot Dog	2%
Not Sure	6%

Which type of graph should be used to show the results of the poll?

- A. bar graph ← TO COMPARE
 B. circle graph ← DECOMPOSITION OF 100%
 C. line graph ← OVER TIME
 D. pictograph

20. The oldest person out of approximately 740 people that attended a softball game was 71 years old. The range of ages is sixty-five years. Which is the age of the youngest person in attendance at the game?

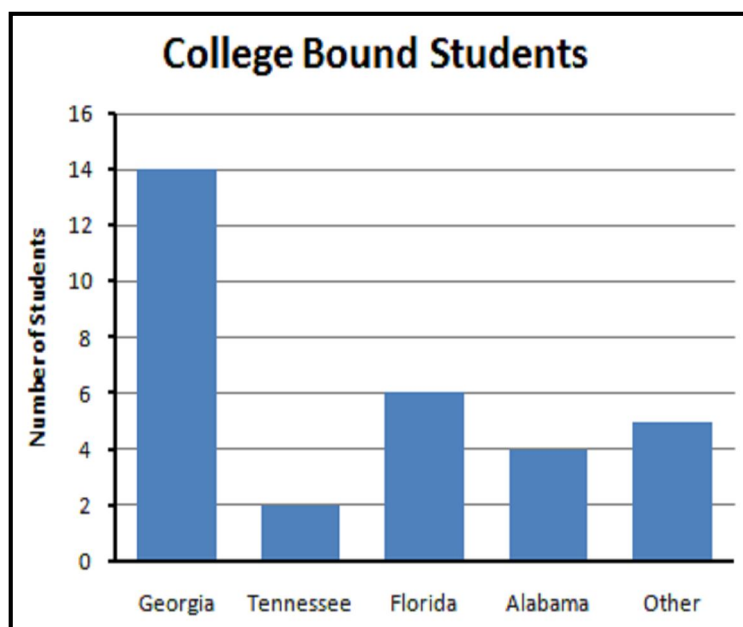
- A. 6 years old
 B. 18 years old
 C. 65 years old
 D. 68 years old

$$\begin{aligned} \text{RANGE} &= \text{HIGH} - \text{LOW} \\ 65 &= 71 - x \\ \underline{-71} \quad \underline{-71} & \\ -6 &= -x \end{aligned}$$

21. A counselor at a Central High School started keeping track of her students that had been accepted to college and in which state they were planning to attend.

Using the graph she created at the right, how many students were planning to attend college in Alabama?

- A. 0
 B. 2
 C. 4
 D. 8

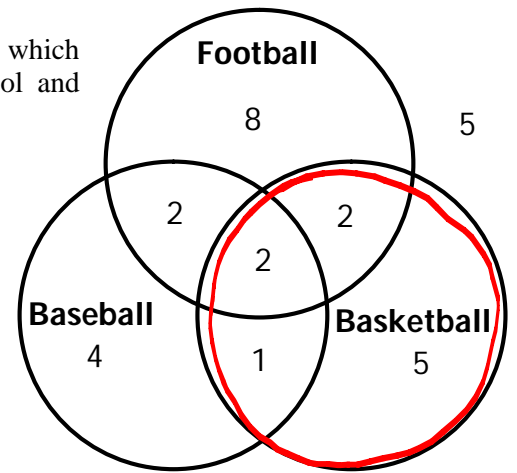


22. Using the same graph at the right, what is the ratio of students attending college in Florida to Alabama?

- A. 1:6
 B. 4:1
 C. 1:2
 D. 3:2

$$\begin{aligned} \text{FLA} &: \text{ALB} \\ 6 &: 4 \\ 3 &: 2 \end{aligned}$$

23. Coach Jordan took a survey of his weight training class to see which sports each of his students were participating in at the school and created the following diagram of the results.



How many of the students in his class play Basketball?

- A. 5
B. 6
C. 8
D. 10

$$5 + 2 + 2 + 1 = 10$$

24. Marissa is baking a $1\frac{1}{2}$ pound loaf of bread.

Loaf of Bread size (pounds)	Approximate Time at 325°F (hours)
1	1 to $1\frac{1}{2}$
1.5	$1\frac{3}{4}$ to $2\frac{1}{2}$
2	$2\frac{1}{4}$ to $2\frac{3}{4}$
2.5	$2\frac{1}{2}$ to 3

What is the **most** amount of time she should allow for baking the loaf at 325°F?

- A. $1\frac{1}{2}$ hours
B. $1\frac{3}{4}$ hours

- C. $2\frac{1}{2}$ hours
D. 3 hours

25. The vending machine has 6 items for sale. Not all of the items are priced the same. The following is a list of the price of each of the items: 60¢, 75¢, 50¢, 75¢, 70¢, 60¢. What is the average price of an item in the vending machine?

A. 60¢
B. 65¢

$$= \frac{(60+75+50+75+70+60)}{6} = 65$$

- C. 70¢
D. 75¢

$$\frac{(60+75+50+75+70+60)}{6} = 65$$

26. Tony had a class average of 90% after 3 tests. After taking her 4th test, her class average dropped to an 88%. If her class average was only determined by test grades what did she make on her 4th test?

A. 82%
B. 84%

$$4 \cdot \frac{90+90+90+X}{4} = 88 \cdot 4$$

- C. 86%
D. 88%

$$270 + X = 352$$

$$-270 \quad -270$$

$$X = 82$$

$$\begin{array}{r} 4 \cdot 88 \\ 352 - 270 \\ \hline 82 \end{array}$$

27. To determine the mass of a teacher's desk, which is the **most** appropriate unit of measure?

- A. grams
B. centigrams
C. dekagrams
D. kilograms

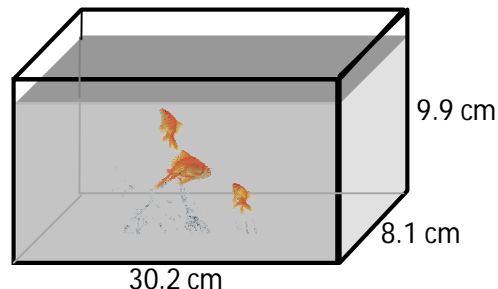
28. Rounding off to the nearest centimeter, estimate the volume of the fish tank below.

- A. 240 cm³
- B. 490cm³
- C. 2400 cm³**
- D. 7200cm³

$$V = l \cdot w \cdot h$$

$$= (30\text{cm})(8\text{cm})(10\text{cm})$$

$$= 2400\text{cm}^3$$



29. What would be the most appropriate estimate for the mass of a backpack with a few books?

- A. 11 kilograms. $\approx 24\text{ lbs}$**
- B. 34 kilograms. $\approx 75\text{ lbs}$
- C. 62 kilograms. $\approx 136\text{ lbs}$
- D. 104 kilograms. $\approx 229\text{ lbs}$

APPROXIMATELY ON EARTH

2.2 POUNDS = 1 KILOGRAM



30. What would be an appropriate temperature to set the stove to bake a pizza?

$$F = \frac{9}{5} \cdot C + 32$$

- A. between 165° C and 185° C** ✓
- B. between 275° C and 295° C ← TOO HOT

- C. between 345° C and 365° C ← WAY TOO HOT
- D. between 450° C and 470° C ← WAY TOO HOT

329° F 365° F
527° F 563° F

31. Scott attends college. His first class starts at 7:30 am and his last class finishes at 3:15 pm. If he stays on the college campus the whole day except for a quick 30 minute lunch, then how many hours does Scott spend on campus each day?

- A. 6.5 hours
- B. 6.75 hours

- C. 7.25 hours**
- D. 7.75 hours

7:30 1
8:30 2
9:30 3
10:30 4
11:30 5
12:30 6
1:30 7
2:30 7 HRS & 45 MIN
- 30 MIN LUNCH
3:15 7 HRS & 15 MIN = 7.25 HRS

32. A package that is to be mailed at the post office weighs 54 ounces. How many pounds does the package weigh? 16 OUNCES = 1 POUND

- A. between 5.0 and 5.5 pounds
- B. between 2.0 and 2.5 pounds

$$\frac{54}{16} = 3.375$$

- C. between 2.5 and 3.0 pounds
- D. between 3.0 and 3.5 pounds**

54/16	3.375
-------	-------

33. A freight train is traveling at 61 miles per hour, about how many miles will it travel in 2.5 hours?

- A. 62 miles
- B. 85 miles

$$d = r \cdot t$$

$$\approx (60\text{ MPH})(2.5\text{ HRS})$$

$$\approx 150\text{ MILES}$$

- C. 120 miles
- D. 150 miles**

34. Study Figures I and II. Determine which transformation, if any, of Figure I is shown in Figure II?

- A. reflection
- B. dilation
- C. translation
- D. no transformation



Figure II



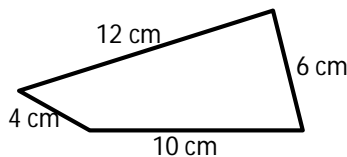
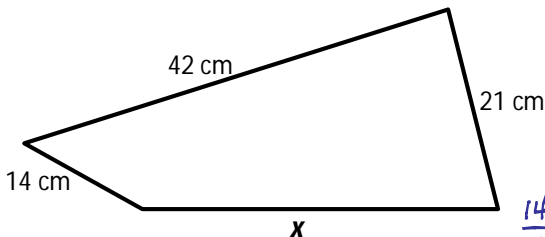
Figure I

35. Simplify. $4(2x) + x = 8x + 1x = 9x$

- A. $12x$
- B. $8x$

- C. $8x^2$
- D. $9x$

36. Find the missing length (x) for the pair of similar figures below.



- A. 20 cm
- B. 25 cm

$$\frac{14}{4} = \frac{x}{10}$$

$$4x = 140$$

$$x = 35$$

- C. 35 cm
- D. 40 cm

37. Rhonda has a picture that measures 4 inches in width and 6 inches in length. If Rhonda enlarges the picture to make a poster that measures 2 feet in width, how long will the poster be?

- A. 8 inches
- B. 12 inches

$$\frac{W}{L} = \frac{4''}{6''} = \frac{24''}{x}$$

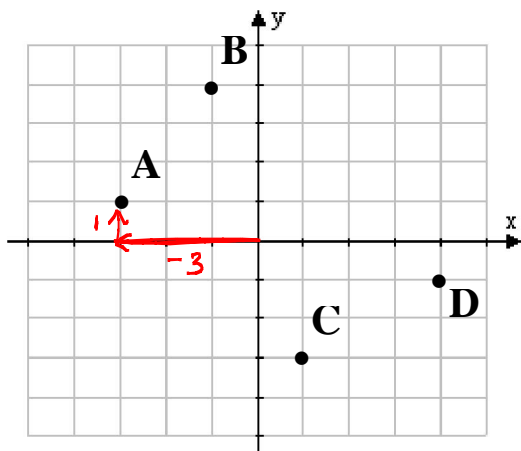
$$144 = 4x$$

$$36 = x$$

- C. 24 inches
- D. 36 inches

$24 \cdot 6$	144
$144 \div 4$	36

38. Which point shown on the graph below has the coordinates $(-3, 1)$?

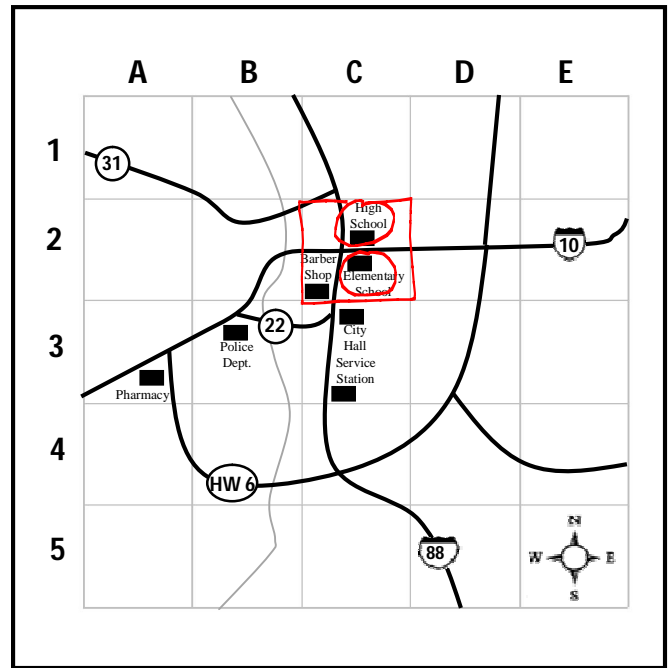


- A. point A
- B. point B
- C. point C
- D. point D

Downtown Mayberry, Georgia

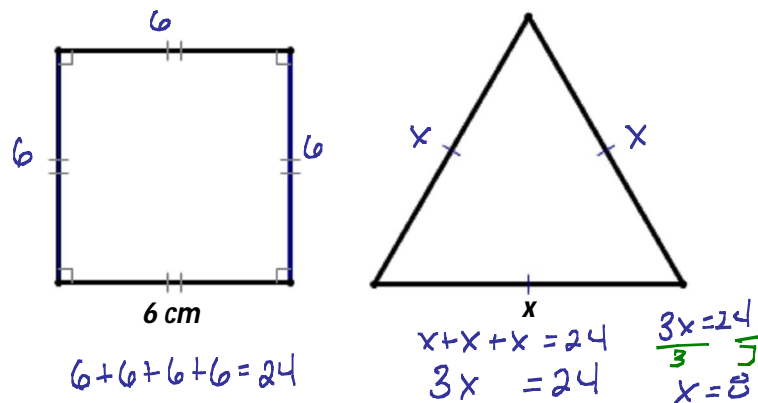
39. Which of the following indicates the square where Mayberry's two Schools are located?

- A. B, C
- B. C, 2**
- C. B, 3
- D. 3, 2



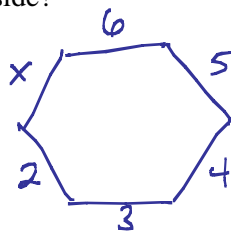
40. The perimeters of the square and the equilateral triangle are the same. If a side of the square measures 6 cm, then what would be the measure of a side of the triangle?

- A. 3
- B. 5
- C. 8**
- D. 10



41. An irregular hexagon has a perimeter of 25". Five of its sides are 2", 3", 4", 5" and 6". What is the length of the remaining side?

- A. 5"**
- B. 6"



$$2 + 3 + 4 + 5 + 6 + x = 25$$

$$20 + x = 25$$

$$x = 5$$

- C. 25"
- D. 45"

42. Which item is **most** like a cylinder?

A. basketball



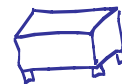
B. box of cookies



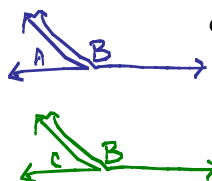
C. can of soup



D. desk



43. Given $\angle A$ and $\angle B$ are supplementary angles. Also, $\angle A$ and $\angle C$ are supplementary angles. What can you conclude about $\angle B$ and $\angle C$?



A. $\angle B$ and $\angle C$ are congruent

C. $\angle B$ and $\angle C$ are supplementary

B. $\angle B$ and $\angle C$ are complimentary

D. $\angle B$ and $\angle C$ are corresponding

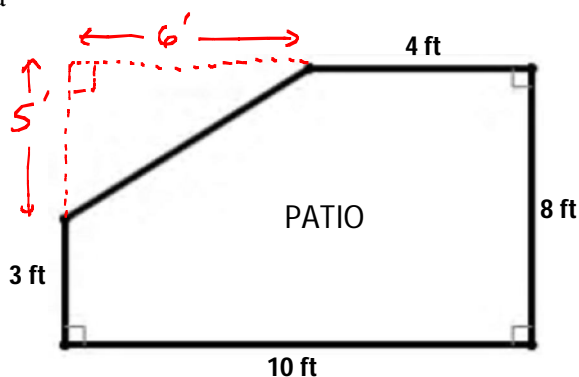
44. Alex was pouring an irregular shape concrete patio for a home owner. He usually charges his customers by the area of the patio.

$$\begin{aligned} \text{AREA} &= \text{rectangle} - \text{triangle} \\ &= (8 \cdot 10) - \left(\frac{1}{2} \cdot 6 \cdot 5\right) \end{aligned}$$

What is the area of this patio (in square feet)?

$$= 80 - 15 = 65 \text{ ft}^2$$

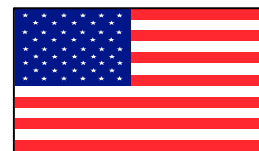
- A. 32.8 square feet
 B. 50 square feet
 C. 65 square feet
 D. 80 square feet



45. The red stripes on the American flag could be best described as:

- A. collinear
 B. intersecting

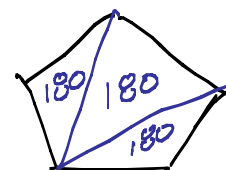
- C. parallel
 D. perpendicular



46. What is the sum of the degree measures of the interior angles of a pentagon?

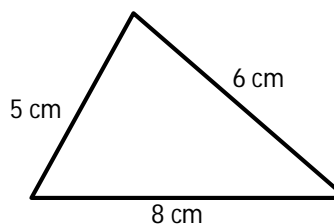
- A. 120°
 B. 180°

- C. 360°
 D. 540°



47. Describe the following triangle based on the lengths of its sides.

- A. acute triangle
 B. equilateral triangle
 C. isosceles triangle
 D. scalene triangle



48. Find the numerical value of $5 - 2(3 + a) + a^2$ when $a = 4$.

- A. -5
 B. 7

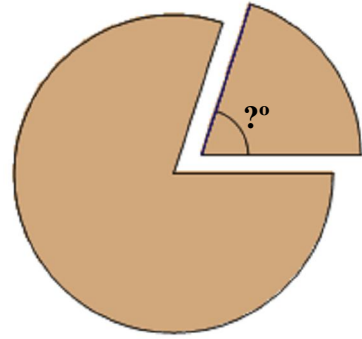
- C. 19
 D. 124

$$\begin{aligned} &= 5 - 2(3+4) + 4^2 \\ &= 5 - 2(7) + 4^2 \\ &= 5 - 2(7) + 16 \\ &= 5 - 14 + 16 \\ &= -9 + 16 = 7 \end{aligned}$$

49. Rachel cut a cake into 5 equal pie-shaped pieces. What would be the measure of each of the angles created at the center of the cake?

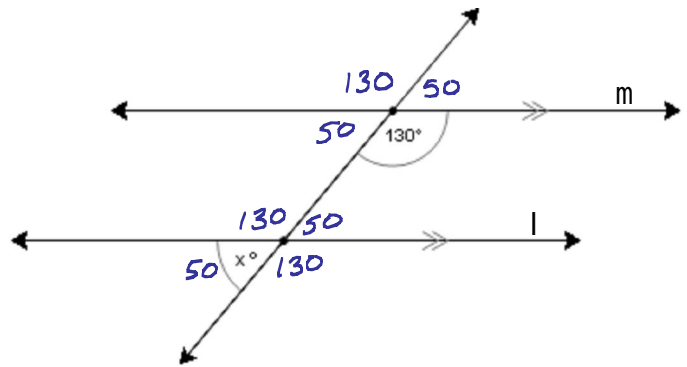
- A. 5°
 B. 72°
 C. 80°
 D. 90°

$$\frac{360^\circ}{5} = 72^\circ$$



50. In the diagram shown the lines l and m are parallel ($l \parallel m$). Find the value of x in the diagram.

- A. 50°
 B. 60°
 C. 70°
 D. 130°

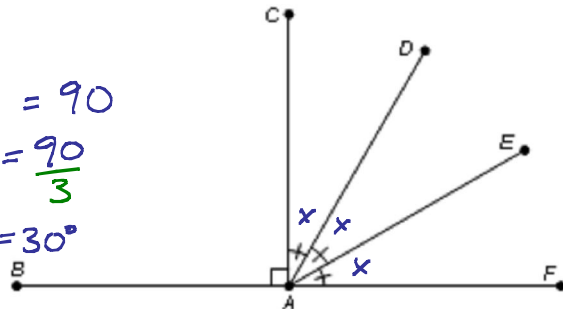


51. In the diagram, $\angle BAC$ is a right angle and $\angle CAD \cong \angle DAE \cong \angle EAF$.

What is the measure of $\angle EAF$?

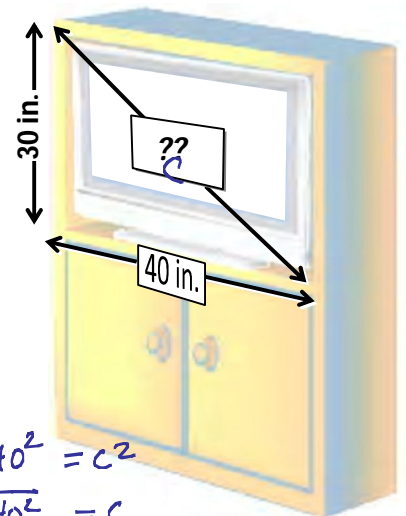
- A. 30°
 B. 60°
 C. 90°
 D. 180°

$$\begin{aligned} x + x + x &= 90 \\ \frac{3x}{3} &= \frac{90}{3} \\ x &= 30^\circ \end{aligned}$$



52. T.V. sizes listed at stores are described by the length of a diagonal measurement from one corner of a screen to an opposite corner of a T.V. A person wants to buy the biggest T.V. that will fit in the cabinet space that was designed for a T.V. Which of the methods below would show the correct way to calculate the size of the T.V. that will fit?

- A. 30×40
 B. $\sqrt{30^2 + 40^2}$
 C. $30 + 40$
 D. $\frac{(30 \times 40)}{2}$



53. Kristen is buying 4 tires and 2 wiper blades for her car. Each tire costs \$65 and each wiper blade costs \$20. Kristen also has a coupon for \$10 off her entire purchase. Which expression below shows how much Kristen will pay for the items?

A. $4(65) + 2(20) - 10$
 B. $4(20) - 10 + 2(65)$

C. $65(20) + 4(2) - 10$
 D. $10(20 + 65) + 2(4)$

54. A cab company in Atlanta charges \$3.00 initially and then 50 cents for each mile that they drive a customer. The amount in dollars that they charge their customers can be represented by the expression $3 + 0.5x$, with x representing the number of miles. If Wendy used one of this company's cabs for a 8 mile trip, determine how much Wendy was charged using the expression.

A. \$3.00
 B. \$7.00

$$= 3 + 0.5(8)$$

$$= 3 + 4$$

$$= 7$$

C. \$11.50
 D. \$24.50

55. Mary is putting a border around her garden that is in the shape of a right triangle (shown at the right). What is the perimeter of her garden?

A. 17 ft
 B. 29 ft

$$a^2 + b^2 = c^2$$

$$8^2 + 15^2 = c^2$$

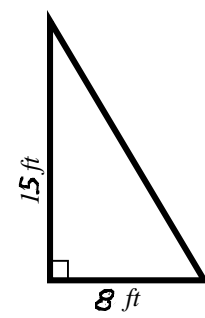
$$64 + 225 = c^2$$

$$289 = c^2$$

$$\sqrt{289} = \sqrt{c^2}$$

$$17 = c$$

C. 30 ft
 D. 34 ft



56. In 8 days a tomato plant grew 5 inches. At this continued rate how many days will it take the tomato plant to grow another 12 inches?

A. 3.3 days
 B. 7.5 days

$$\frac{\text{DAYS}}{\text{INCHES}}: \frac{8}{5} \rightarrow \frac{x}{12}$$

$$5x = \frac{96}{5}$$

$$x = 19.2$$

C. 17.0 days
 D. 19.2 days

57. Wesley cut the grass in his yard 5 times using 2 gallons of gas. Wesley thinks he will have to cut his yard 19 times during the summer. Which proportion should Wesley use to determine the number of gallons of gasoline (G) he will need to cut his grass for the entire?

A. $\frac{2}{G} = \frac{19}{5}$

B. $\frac{G}{19} = \frac{5}{2}$

C. $\frac{5}{G} = \frac{19}{2}$

D. $\frac{G}{19} = \frac{2}{5}$

58. Which of the following algebraic expressions corresponds to "six subtracted from the quotient of a number and two"?

A. $\frac{n}{2} - 6$

C. $6 - \frac{n}{2}$

B. $6 - 2n$

D. $2n - 6$

59. Which operation would be used to solve the equation, $x + 18 = 27$?

A. addition

C. multiplication

B. division

D. subtraction

60. Find the value of a , if $4x - 7 = 17$?

A. 2.5

$$\frac{4x}{4} = \frac{24}{4}$$

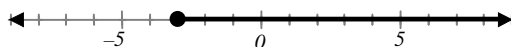
$$x = 6$$

C. 6

B. 4.25

D. 24

61. Which of the inequalities below correctly describes the following graph?



A. $-3 > x$: $x < -3$

C. $-3 \geq x$: $x \leq -3$

B. $-3 < x$: $x > -3$

D. $-3 \leq x$: $x \geq -3$

62. A family was driving to the beach for vacation. The dad drove 200 miles of the way to the beach and the mom drove the remaining 150 miles of the distance to the beach. What is the ratio of the number of miles the dad drove to the total miles driven to the beach?

A. $\frac{7}{4}$

C. $\frac{4}{7}$

$$\frac{\text{DAD DROVE}}{\text{TOTAL MILES}} = \frac{200}{200+150} = \frac{200}{350}$$

B. $\frac{4}{3}$

D. $\frac{3}{4}$

$$= \frac{20}{35} = \frac{4}{7}$$

63. If 2 out of 5 seniors take Calculus in high school, how many people can be expected to take Calculus at South Central High School with 180 Seniors?

A. 55

$$\frac{\text{CALCULUS}}{\text{TOTAL}} = \frac{2}{5} \times \frac{x}{180}$$

C. 90

B. 72

$$5x = \frac{360}{5}$$

D. 450

$$x = 72$$

64. Given the equation $2x + 3y - 6 = 0$, find the x and y intercepts

A. $(0, 2)$ $(3, 0)$

$$\begin{aligned} &\text{X-INT } (, 0) \\ &2x + 3(0) - 6 = 0 \\ &2x - 6 = 0 \\ &\quad +6 \quad +6 \\ &\hline &2x = 6 \\ &\frac{2x}{2} = \frac{6}{2} \\ &x = 3 \\ &(3, 0) \end{aligned}$$

C. $(0, -2)$ $(-3, 0)$

B. $(2, 0)$ $(0, 3)$

D. $(-2, 0)$ $(0, -3)$

$$\begin{aligned} &\text{Y-INT } (0,) \\ &2(0) + 3y - 6 = 0 \\ &3y - 6 = 0 \\ &\quad +6 \quad +6 \\ &\hline &3y = 6 \\ &\frac{3y}{3} = \frac{6}{3} \\ &y = 2 \\ &(0, 2) \end{aligned}$$

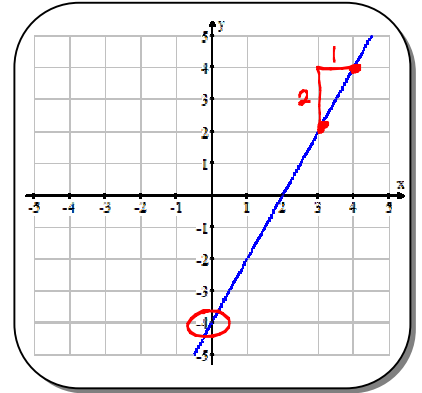
65. The graph shown at the right is the graph of which of the following equations?

A. $y = 2x + 2$

C. $y = 2x - 4$

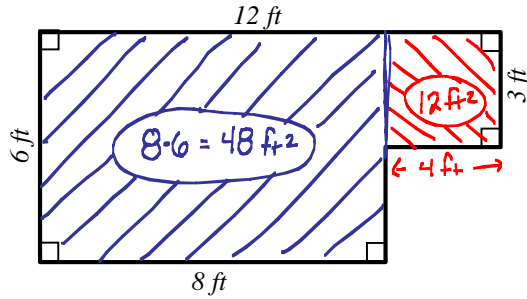
B. $y = \frac{1}{2}x + 2$

D. $y = \frac{1}{2}x - 4$



$y = \frac{2}{1}x - 4$

66. Find the area of the following polygon.



A. 57 ft^2
 B. 60 ft^2

C. 72 ft^2
 D. 84 ft^2